PROBLEM: Land use conversion is continuing to diminish habitat for sensitive species.

GOAL: Halt conversion of sensitive species habitat to other uses and initiate restoration efforts.

Objective 1 - Protect existing sensitive species habitat in the San Joaquin Basin.

Objective 2 - Improve and/or restore critical habitat areas for sensitive species.

Objective 1 - Protect existing sensitive species habitat in the San Joaquin Basin.

Action 1 - Establish buffer areas to protect sensitive species habitat from urban and agricultural encroachment.

A request will be made to: (1) map habitats in the San Joaquin Basin including adjacent corridor linkages and buffer areas, needed to maintain the biological diversity of the basin, (2) identify and document all biologically sensitive plant and animal communities within, and adjacent the river corridor of the San Joaquin River and tributaries.

Objective 2 - Improve and/or restore habitat areas for sensitive species.

Action 2 - Develop and implement habitat management plans for sensitive species.

A request will be made to identify target species for management plans.

Action 3 - Acquire (fee-title and/or easements) lands with existing habitat for sensitive species and lands suitable for restoration for sensitive species.

A request will be made to identify lands suitable for restoration that will improve habitat for sensitive species.

PROBLEM BACKGROUND

Land use conversion is continuing to diminish habitat for sensitive species.

Agriculture and urban expansion has been extensive in the San Joaquin Basin. As of 1990 there were approxiamately 14 Federally listed endangered species within the study area. In addition there were approximately 20 species identified by the Fish and Wildlife Service as Candidate Species indicating information is available to posssibly warrant listing.

Most of California's unique species live in restricted habitats, under special conditions to which they have been adapting for hundreds or thousands of years. As people change or destroy these habitats, their native inhabitants die or fail to reproduce.

Major threats (unranked in priority) to remaining habitats in the Basin include the following:

Conversion to agriculture. - The economic pressure to convert privately owned lands to croplands remains a threat to remaining habitats. Duck clubs have been a dominant force in preservation of California wetlands with management directed toward providing waterfowl habitat and sport hunting. Increasingly high maintenance costs for wetlands and diminishing hunting activity are threatening this traditional protection of wetlands.

Conversion to residential or industrial use. - Population growth from the San Francisco Bay and other areas is creating pressures on all undeveloped lands for urban expansion. Without adequate regulatory measures, land conversion is anticipated to continue.

The problem of land use conversion continuing to threaten sensitive species was identified in all reaches identified in the study area.

PROBLEM: Wildlife, including aquatic species, are subjected to hazardous or toxic conditions from discharges.

GOAL: Reduce hazardous or toxic conditions from discharges.

Objective 1 - Control water quality of discharges into San Joaquin River and tributaries.

Objective 2 - Monitor existing studies being conducted on effects of drainwater on fish and wildlife.

Objective 1 - Control water quality of discharges into the San Joaquin River and its tributaries.

Action 1 - Develop a recommendation for enforceable standards to be adopted by the State for discharges to the San Joaquin River and tributaries and fund enforcement activity.

Action 2 - Develop a plan for agricultural and urban drainage source control.

Action 3 - Implement the plan for agricultural drainage water management and reuse developed by the San Joaquin River Drainage Program to improve downstream water quality.

Action 4 - Develop a program to encourage local communities to develop tertiary waste treatment facilities for potential use in wetland creation, restoration, and instream flow for riparian habitat.

A request will be made to investigate feasibility of developing tertiary waste treatment facilities for San Joaquin Basin communities and provide this information to San Joaquin Basin communities.

Action 5 - Implement a plan for groundwater management in the groundwater basins within the San Joaquin Basin.

Action 5 - Implement a plan that includes land retirement or new management to resolve drainage problems in areas where continued drainage problems can not be rectified.

A request will be made to identify lands in the project area that contribute to the selenium problem for wildlife, and develop guidelines for the retirement and/or management of these lands if drainage problems persist.

Objective 2 - Monitor existing studies being conducted on effects of drainwater on fish and wildlife.

Action 6 - Monitor (1) ongoing field studies designed to determine extent of surface and subsurface agricultural drainage water-related effects on vertebrate species along the San Joaquin

River, (2) evaporation pond studies being conducted in the Tulare Basin, and (3) the California Department of Food and Agriculture studies on the effects of contaminants on fish and wildlife.

A request will be made to assign a SJRMP representative to monitor these studies to ensure there is coordination of programs.

PROBLEM BACKGROUND

Wildlife, including aquatic species, are subjected to hazardous or toxic conditions from discharges.

As they are currently managed, waterways within the San Joaquin Basin primarily function as conduits for irrigation water into agricultural areas, and subsequently, tailwater, and subsurface drainage water through the valley for eventual discharge to the San Joaquin River and Sacramento-San Joaquin Delta.

The San Joaquin River, downstream of Bear Creek, receives inflows from Bear Creek, Salt and Mud Sloughs, the Merced, Tuolumne, and Stanislaus Rivers, and numerous northern west-side tributaries, creating perennial flow between Bear Creek and the Sacramento-San Joaquin Delta.

Subsurface drainage water has been found to be carrying high concentrations of selenium into the western Grasslands area from agricultural areas south of the southwestern Grasslands area. Selenium concentrations tend to decrease in downstream waterways (south to north flow) through the Grasslands.

The San Joaquin River drains approximately 5.9 million acres of land, including about 2 million acres of irrigated agricultural land. Approximately 77,000 acres of that land on the west side of the valley are underlain with subsurface drainage systems. Water from subsurface drains is pumped from sumps and discharged into surface ditches where it may be comingled with tailwater and other surface flows. The drainage water in this area which is not recycled, otherwise reused, or stored underground, is currently discharged to the San Joaquin River either directly or via Salt Slough and Mud Slough resulting in relatively poor water quality in many west-side tributaries and the river downstream to the Merced River confluence. During the irrigation season (spring through fall), the flow and quality of the water in the middle reach of the San Joaquin River is dominated by surface and subsurface agricultural drainage from the east and west sides of the basin. An additional problem may be pesticide contamination resulting from irrigation return waters.

Efforts to reduce surface and subsurface drainage has resulted in creation of evaporation ponds in the San Joaquin Valley. Approximately 129 acres of evaporation ponds (total of 3 sites) are located in the San Joaquin Basin. Evaporation ponds are shallow, warm, nutrient-enriched, and usually have gradual side slopes (up to 8:1). Discharge into evporation ponds is currently one of the two most common means to dispose of subsurface agricultural drainage water in the San

Joaquin Valley. However, the more common method in the San Joaquin Basin is to discharge into surface ditches, canals, streams, and sloughs, eventually reaching the San Joaquin River.

The adverse biological effects documented at evaporation ponds (San Joaquin Valley Drainage Program) are very similiar to those observed at Kesterson Reservoir. While almost all of the attention to date regarding toxic effects from subsurface agricultural drainage water generated in the San Joaquin Valley has focused on selenium and other trace elements, the high salinity in these ponds may also pose a hazard to wildlife. Calcium carbonate encrustation of tail feathers in ruddy ducks on some systems has been documented. The degree of encrustation has been positively correlated with the concentrations of total dissolved solids in evaporation ponds and duration of exposure. Feather encrustation may impair diving and flying functons in affected birds.

In summary, at least four potentially hazardous or toxic conditions may exist in the San Joaquin River Basin (Reaches 3,4,5,6) for wildlife. These are:

a. Surface and subsurface agricultural drainage water containing toxic substances entering the Grasslands area may be adversely affecting wildlife, plants, and aquatic species.

b. Surface and subsurface agricultural drainage water entering the San Joaquin River may be adversely affecting wildlife, plants, and aquatic species.

c. Evaporation ponds created to reduce agricultural drainage water inflows to the river may be adversely affecting wildlife.

d. Pesticide contamination of the abiotic and biotic environment.

PROBLEM: There is possible degradation of habitat and disturbance to wildlife due to access by the public.

GOAL: Document degradation of habitat and disturbance to wildlife due to public access and develop plans to reduce this impact.

OBJECTIVES

Objective 1 - Document adverse effects on wildlife and their habitat caused by public access.

Objective 2 - Increase managed public access areas to help direct and confine recreation activities to developed areas.

Objective 3 - Develop Off-Road-Vehicle areas away from the rivers in areas where riparian vegetation is being disturbed.

Objective 4 - Habitat restoration.

Objective 1 - Document adverse effects on wildlife and their habitat caused by public access.

Action 1 - Inventory the ten San Joaquin River Management Program Study Reaches to identify specific areas where impacts have occurred, or are occurring.

A request will be made to fund completion of Action 1.

Pending results of Action 1, the three following objectives are necessary.

Objective 2 - Increase managed public access areas to help direct and confine recreation activities to developed areas.

Action 2 - Develop and construct displays at existing access areas (parks, launch ramps, heavily used areas) promoting use of waterways without disturbing the natural setting.

A request will be made to identify types of displays currently used on public recreation areas and to provide cost estimates, including maintenance, etc. for implementation.

Action 3 - Create hiking trails at existing access areas designed to keep visitors away from sensitive areas.

A request will be made to identify existing hiking trails in the study area and provide cost estimates and potential locations for new trails.

Action 4 - Establish additional public access areas such as parks, launching facilities, and ORV areas (away from the rivers) with an overall management plan, including enforcement, in place where they ccan be managed to protect adjacent lands.

A request will be made to identify existing designated public access areas to the San Joaquin River and tributaries and provide cost estimates and locations for new facilities .

Objective 3 - Develop Off-Road-Vehicle areas away from the rivers in areas where riparian vegetation is being disturbed.

Action 5 - Develop and implement a public awareness program through the various media concerning the loss of habitat values due to indiscriminate uses, including ORV's.

Objective 4 - Habitat restoration.

Action 6 - Restore areas where recreation activities have adversely impacted habitat values.

PROBLEM BACKGROUND

There is possible degradation of habitat and disturbance to wildlife due to access by the public.

As California increases in population more pressure is put on the environment by individuals seeking recreation activities. It's perceived that wildlife habitat and populations are adversely impacted by these activities.

Human activities which contribute to degradation of habitat values and disturb wildlife include (1) overland access to the river and establishment of "camps" and littering, and (2) use of off-road-vehicles (ORV's) in the floodplain especially within the remaining riparian areas.